

PRIOR ART

FIG.1

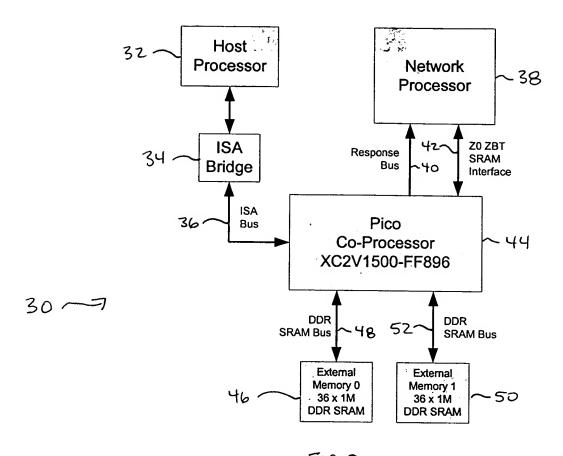


FIG. 2

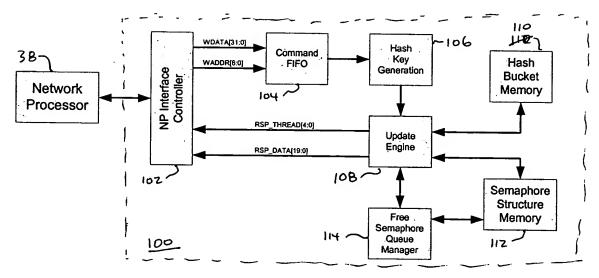


FIG.3

Charles L. Hamilton, Reg. No. 42,624 (650) 326-2400
Attorney Docket No. 20949P-001500US
Title: Apparatus To Offload And Accelerate Pico Code Processing Running In A Storage Processor Applicants: Herbst, Ryan Taylor et al.
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Hash Bucket Array

Active Semaphore

Structures

122

SEMM

SEMM

SEMM

SEMM

122

122

SEMM

SEMM

SEMM

SEMM

FIG. 4

Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	_1	٥		
Data				-									Sem	apho	re V	alue																	l	1217
Bit	l 63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	. 4	124
Data	† T		Wait	Entr	ry 1	\neg		Wait	Entr	γO		(Cum.	Thre	ad		W	ait C	ount		٧				Nex	Sen	naph	ore F	ointe	er			l	
Bit	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	_		
Data	T v	VE 8			Wait	Entr	y 7			Wai	t Entr	y 6			Wai	t Enti	у 5			Wait	Enti	y 4			Wai	Ent	у3		Wa	it Er	try 2		Cont. to 63	
Bit	127	126	125	124	123	122	121	120	119	118					100.0	112				108						_		_	99	98	97	96	3	
Data		Wai	t Enti	ry 14			Wai	Enti	ry 13			Wai	t Ent	ry 12		L	Wait	Entr	y 11			Wait	Ent	ry 10			Wai	Enti	y 9		WE	В.	J	

F16.5

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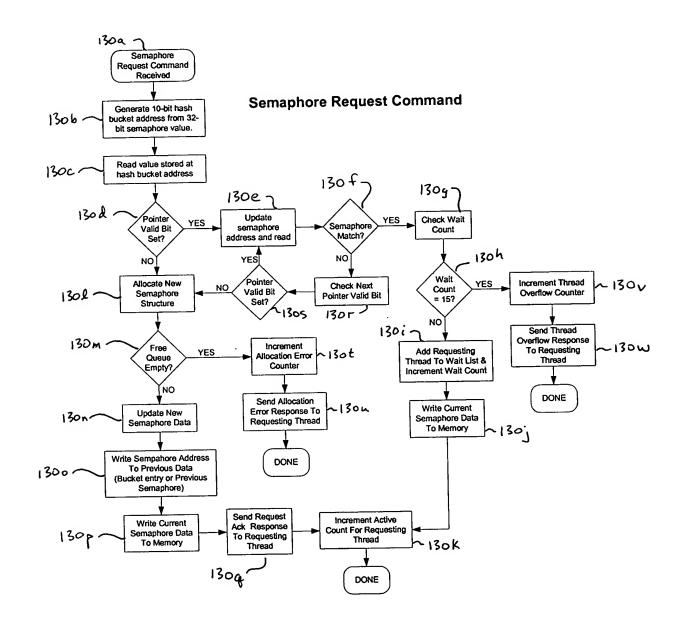
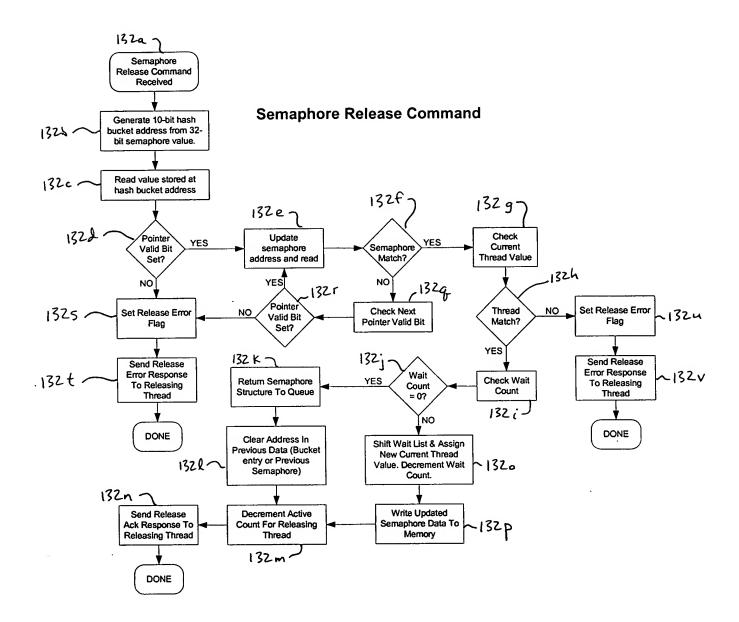
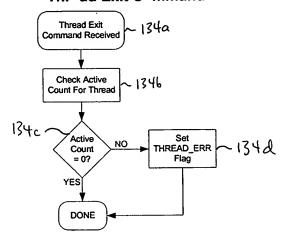


FIG.6

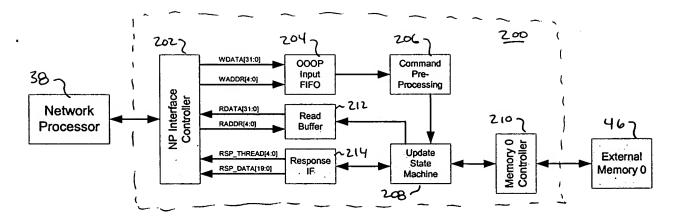


F16.7

Thr ad Exit C mmand



F16.8



F16. 9

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220 7

Bit Lword 0 Lword 1 Name Frame Structure Pointer [20:0]
Expected Frame [15:0]

V = Pointer Valid Flag

T = TX In Progress Bit

F16.10

2227

Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Lword 0				Spar	e Bit	s				A	V							Next	Frai	ne S	truct	ure P	ointe	r [20	:01							
Lword 1				Store	ed Fr	ame	#[15	:0]													Next	Fran	ne#	[15:0	1							\neg
Lword 2				Spar	e Bit	S .															Buffe	er Ad	dres	19:	οî							\neg
Lword 3				Spar	e Bit	5															BCI	Data	19:0	1								

V = Pointer Valid Flag

A = Frame Active Bit

F16.11

V 224

Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Init Queue Command		_				Expe	cted	Fran	ne[1	5:0]														Queu	ie[15	:0]		<u> </u>	Ť			Ď

F16.12

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V 226

F16.13

K 230

 Response
 Value

 Frame TX
 0x0

 Frame Store
 0x1

 Frame Error
 0x2

Bit Frame Poll Command F16.14

30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Unused

Response | Value | No Frame | Ord

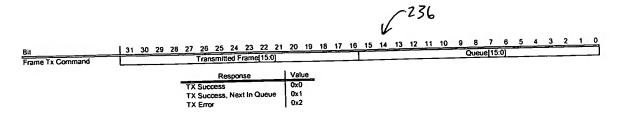
Bit 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

Read Buffer Long Word 0
Read Buffer Long Word 1
Read Buffer Long Word 2
Read Buffer

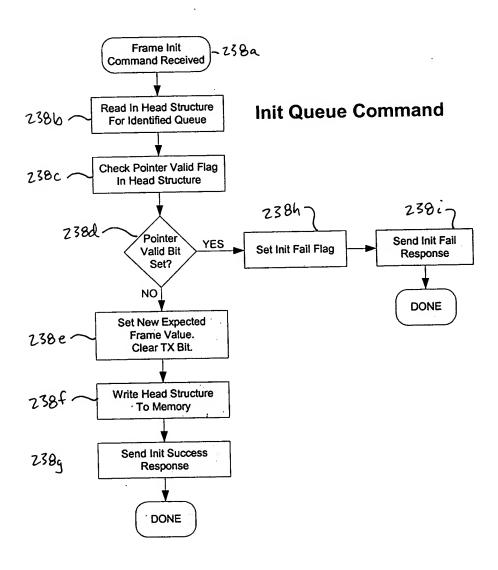
0x0 0x1

FIG.15

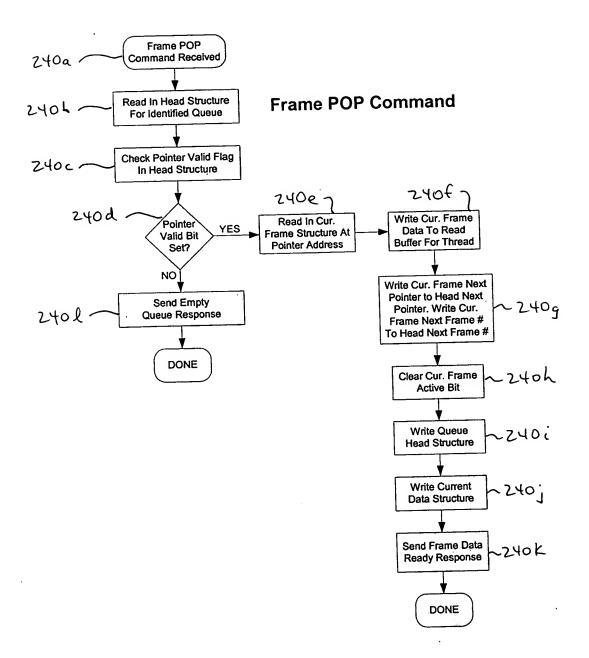
No Frame Frame TX



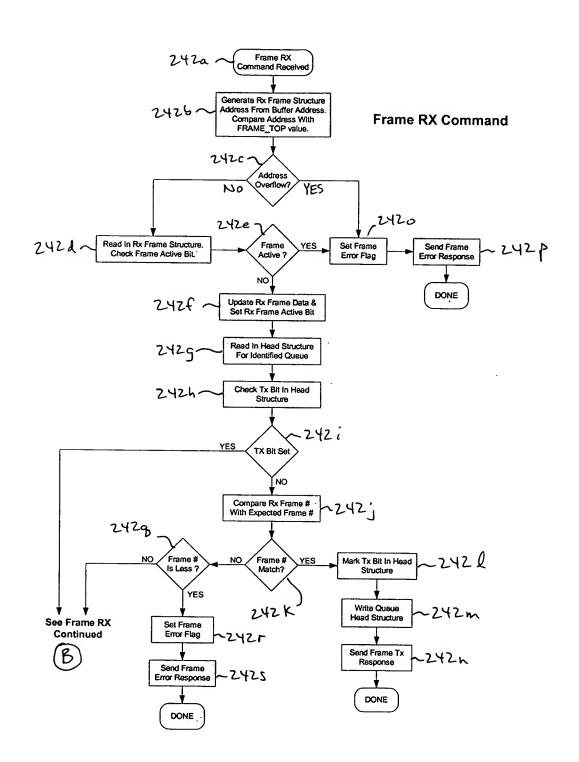
F16.16



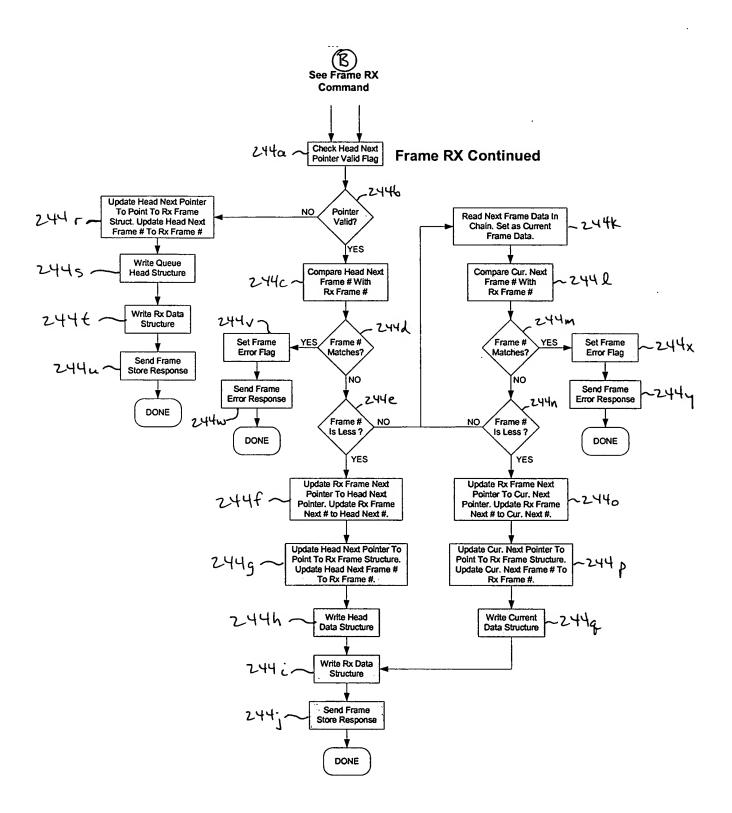
F16.17



F16.18

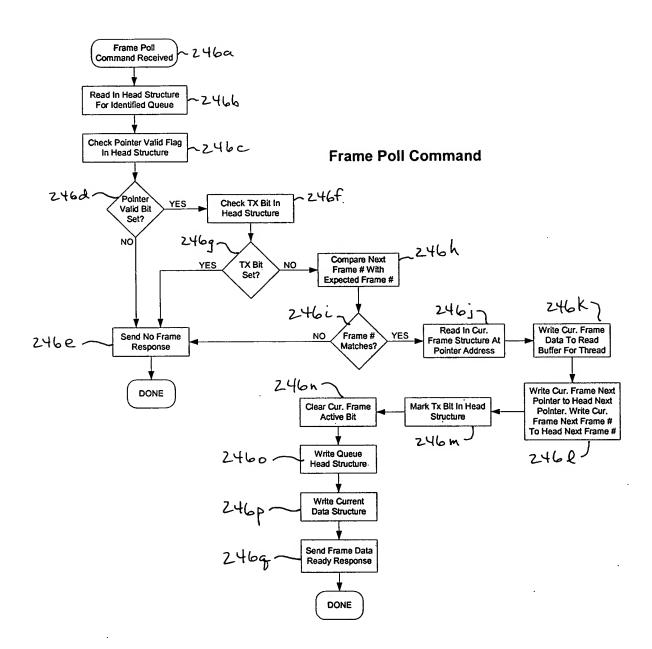


F16.19

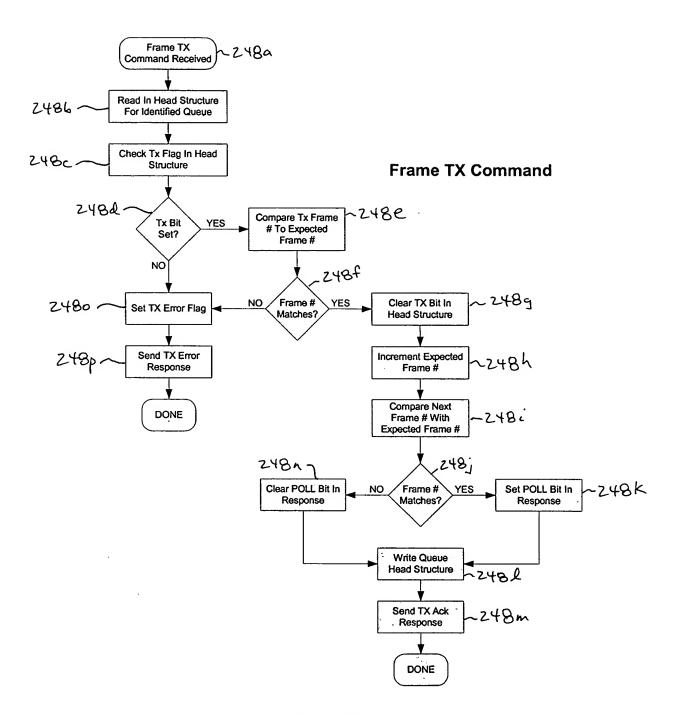


F16.20

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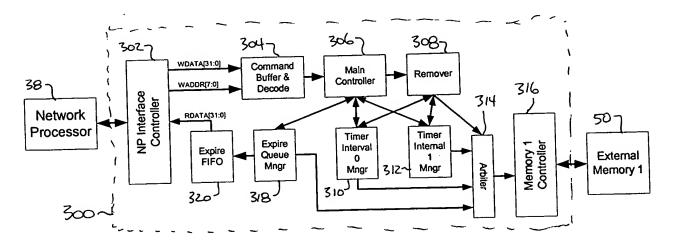


F16.21



F16.22

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F16.23

330 7

Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	<u>U</u>
Data	T					Up F	oint	er[14	:1]												Loop	Cou	nt[1	7:0]								
Bit	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48_	47	46	45	44	43	42	41	40	39	38	37	36_	35	34	33	32
Data	s	s	A	E	DV							Dow	n Po	inter	20:1											U۷		Up F	ointe	er[20	:15]	
Bit	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	
Data	\top			_							Inter	val T	ime[31:2																	Q17	:16]
Bit	127	126	125	124	123	122	121	120	119	118	117	116	115	114	113	112	111	110	109	108	107		_	_	103		101	100	99	98	97	96
Bit Data						Orig	inal	Loop	Cou	nt[15	:0]											Time	out	Hand	iler[1	5:0]						

 XV = Up / Down Pointer Valid Flags
 E A | Timer State

 S = Spare Bit
 0 0 | Idle

 E = Expired Flag
 0 1 | Active

 A = Active Flag
 1 0 | Expired

 C[17:16] = Original Loop Count Cont.
 1 1 | RSVD

F16.24



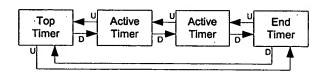


FIG. 25

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334 Z

F16.26

336 2

														t																		
Bit Stop Timer	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Out Ting	L		_		_	;	Spar	re Bit	<u> </u>		_								_			Time	r ID[15:0]								Ď
									spor	_																						
									p Ac p En			0x0						•														,
								Sto	p Ex	pirec	۱	0x2																				

F16.27

338 Z

Bit Restart Timer	31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 Spare Bits Timer ID(15:0)
	Response Value Restart Ack 0x0 Restart Error 0x1 Restart Expired 0x2

F16.28

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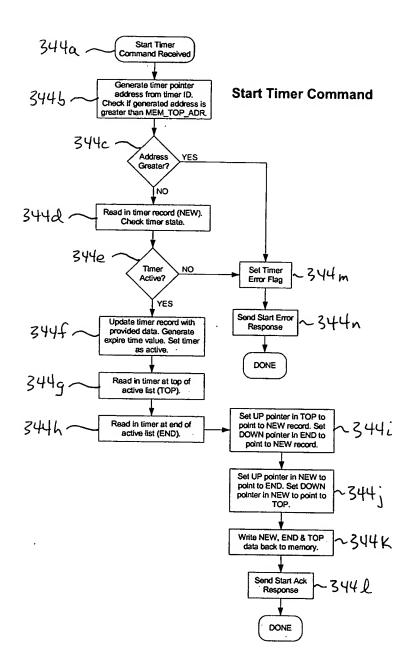
340Z

F16.29

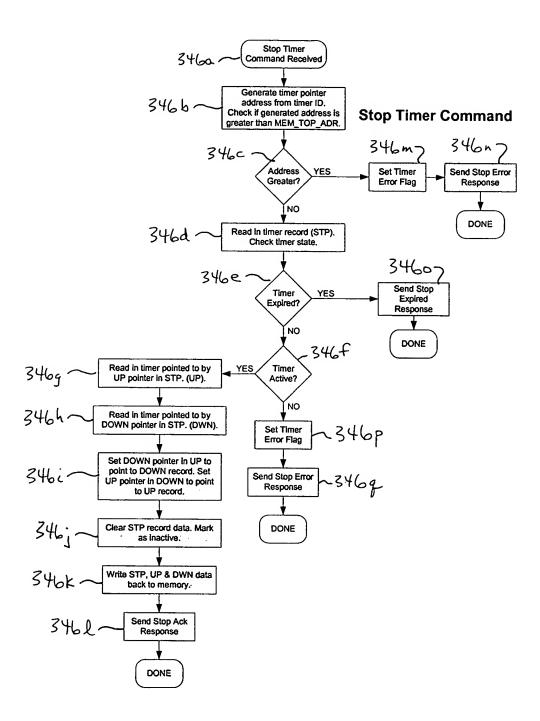
342 2

Bit	31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
Clear Expired	Spare Bits Timer ID[15:0]
	Response Value
	Clear Ack 0x0
	Class Error 0.4

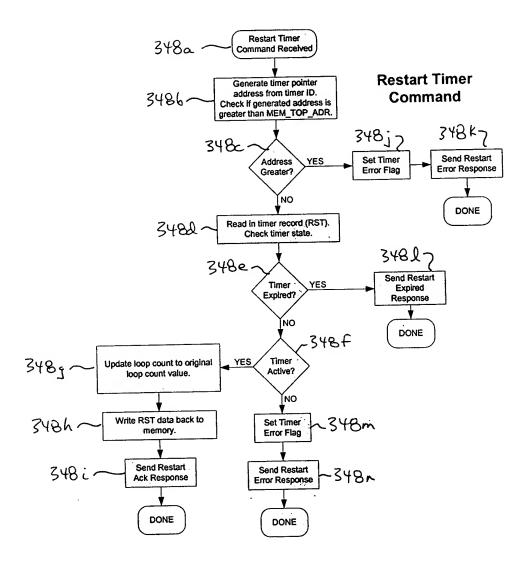
FIG.30



F16.31



F16.32



F16.33

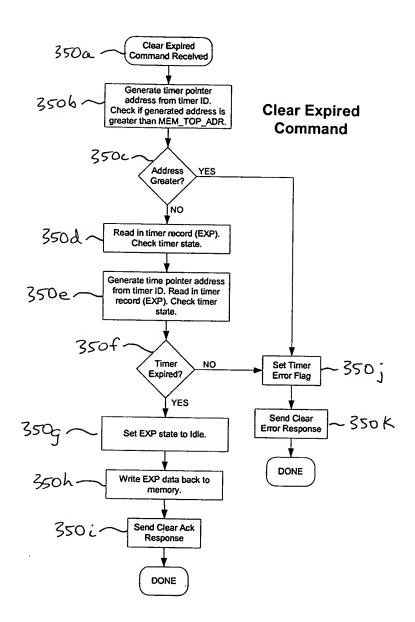
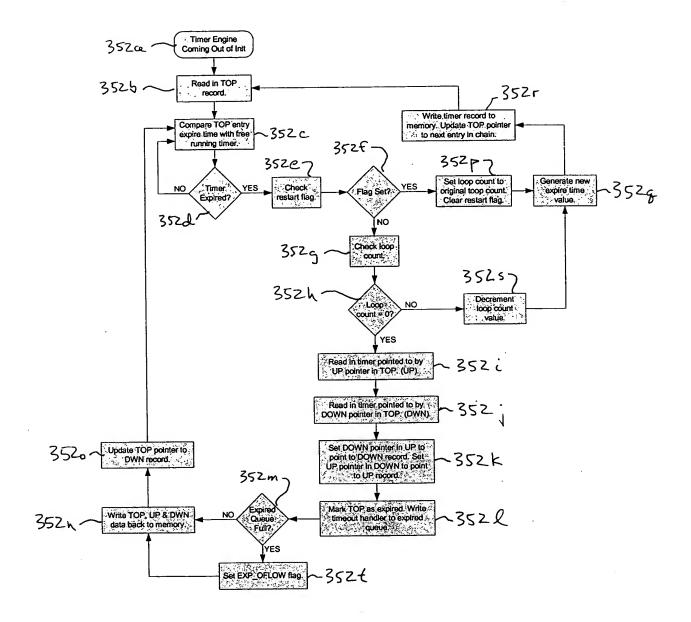


FIG. 34



F16.35